

Applicant respectfully requests reconsideration and withdrawal of the rejections of the claims and objections to the application, in view of the foregoing amendments and following remarks.

REMARKS

A. Status of the Specification

The Office Action has objected to the title of the invention, alleging that it is not descriptive. In response, Applicant has amended the title to “Image Sensing Apparatus Method, And Program For Distance Measurement.”

The Office Action has also objected to the abstract because of its length. Applicant has amended the abstract and respectfully submits that it now complies with the length requirement set forth in MPEP §608.01(b).

B. Status of the Drawings

The Office Action objects to the drawings of the application, stating that they fail to comply with 37 C.F.R. §1.84(p)(5) because (1) the drawings do not include the reference sign “IRCLK” mentioned in the description; and (2) the drawings include the following reference character(s) not mentioned in the description: ST1, ST2, SH, CCDCLR, 49, 17, 18, and 19.¹ (3) there are references to 19L, 19R, 18L, 18R, 17L, and 17R, but there is no generic description of 17-19 (4) Figure 11 should be designated with the legend “Prior Art” because only that which is old is illustrated.

In response, Applicant has amended Figure 2 to show the reference sign “IRCLK”. Applicant has also amended Figure 4 to remove the reference to “ST1, ST2, SH, CCDCLR, 49, 17, 18, and 19.”

¹ Applicant notes that the Office Action alleges that the terms “ST1, ST2, SH, CCDCLR, 49, 17, 18, and 19” are not found in Figure 14. Applicant, however, notes that there are only 11 figures in this application. It is Applicant’s understanding that the objection was to Figure 4, not 14. Applicant respectfully requests Examiner to inform Applicant if Applicant’s understanding is not correct.

With respect to the reference signs 19L, 19R, 18L, 18R, 17L, and 17R, Applicant respectfully asserts that these are described in the specification. For example, “19L and 19R” refer to output amplifiers [specification, page 16, lines 9-10]; “18L and 18R” refer to output amplifier floating gates [specification, page 16, line 8]; and “17L and 17R” refer to external light determination comparators [specification, page 16, lines 5-6]. Applicant, upon review of 37 C.F.R. §1.84, respectfully submits that the description of these reference signs found on page 16 of the specification are sufficient. Applicant does not see where 37 C.F.R. §1.84 requires applicants to provide generic descriptions of reference signs, in addition to specific descriptions provided by Applicant.

Figure 11 has been amended to include the legend “Prior Art”, as requested by the Office Action.

Additionally, Applicant has amended Figures 6 and 7 to correct minor typographical errors. In Figure 6, step S602 has been amended to read “PREDETERMINED TEMPERATURE OR MORE”, while in Figure 7, step S701 has been amended to read “SET DIFFERENCE OUTPUT”.

Applicant respectfully requests the reconsideration and withdrawal of the objections to the drawings.

C. Status of the Claims and Explanation of the Amendments

Prior to the submission of this paper, claims 1-46 were pending. In this paper, Applicant has requested the cancellation of claims 1, 3 and 10-46 without prejudice to these claims being filed in a subsequent continuation application. Accordingly, claims 2 and 4-9 are currently presented for examination.

Applicant has amended claim 2 to further clarify the invention. Claim 2 now recites, inter alia, “a control unit adapted to control to decrease a gain when a temperature

measured by said temperature measuring unit is higher than a predetermined temperature...wherein said predetermined temperature is set such that dark current of said amplification unit does not exceed a predetermined value.” Support for this amendment is found generally throughout the specification and claims [see, e.g., page 13, lines 12-19]. Additionally, claims 4 and 6-9 have been amended so that they depend from claim 2, rather than cancelled claim 1. Applicant respectfully submits that no new matter has been added by these amendments.

Claims 39 – 46 were rejected under 35 U.S.C. §101 for allegedly being directed to non-statutory subject matter. As noted above, Applicant has requested the cancellation of claims 39-46 in this response, thereby rendering the rejection moot.

Claims 1-46 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,870,178 to Egawa (“Egawa”), in view of U.S. Patent No. 6,114,910 to Goff (“Goff”). Because Applicant has requested the cancellation of claims 1, 3 and 10-46 without prejudice in this paper, the rejections of these claims 1, 3; and 10-46 are moot. Accordingly, in this response, Applicant addresses only the rejection of claims 2 and 4-9.

D. Applicant’s Claims Are Not Unpatentable Over The Cited References

Applicant respectfully traverses the rejection of claims 2 and 4-9 under 35 U.S.C. §103(a) as allegedly being unpatentable over Egawa, in view of Goff. Briefly, the combination of references fails to teach, disclose, or suggest all of the claimed elements. Accordingly, the rejection of claims 2 and 4-9 under 35 U.S.C. §103(a) should be withdrawn.

1. The Cited References Fail to Teach, Disclose,
or Suggest All of the Claimed Elements

With respect to the rejection of independent claim 2, the Office Action alleges that Egawa teaches all of the elements with the exception of a “temperature measuring unit adapted to measure a temperature and wherein the control unit is adapted to control a gain of said amplification unit at a first temperature to be lower than a gain of said amplification unit a second temperature...”. The Office Action admits that Egawa fails to disclose these claim elements, and instead relies on Goff, particularly Figures 1 and 3, control section 22, and the statements made in Goff at col. 4, lines 13-16.

A closer inspection of Goff, however, reveals that Goff’s temperature compensated amplifier is quite different from control unit and amplification unit recited in Applicant’s claims. For example, Applicant’s claim 2 recites, inter alia,

a control unit adapted to control to decrease a gain when a temperature measured by said temperature measuring unit is higher than a predetermined temperature and increase the gain when the temperature measured by said temperature measuring unit is lower than the predetermined temperature, wherein said predetermined temperature is set such that dark current of said amplification unit does not exceed a predetermined value.

In other words, Applicant’s control unit *decreases* the gain if the temperature *increases* above the predetermined temperature. This is to minimize the saturation effects that would otherwise occur by amplifying the large dark current signal that appears when the temperature increases, as discussed, for example, on page 3 of Applicant’s specification.

In direct contrast, the gain in Goff’s amplifier appears to be *increased* with *increasing* temperature. The portion of Goff cited by the Office Action (*viz.*, col. 4, lines 13-16), explicitly states that “these gains are *increased* as the temperature *increases* above the threshold temperatures T_1 - T_4 and the gain is *reduced* as the temperature is *reduced* below the

threshold temperatures T_1 - T_4 ” (emphasis added). Goff operates his amplifier in this manner because Goff is concerned with the problem of gain loss with increasing temperature. As Goff explains, “it is noted that the gain of the amplifier 10 here changes -4.5 db over an operating range of temperatures from -10 °C to +60 °C [Goff, col. 3, line 67 to col. 4, line 2; see also col. 4, line 64 to col. 5, line 20]. Moreover, Goff (which according to the title of the patent is directed to a “temperature compensated amplifier) states in the very first line of the abstract that an “uncompensated gain...decreases with increasing temperature”.

In summary, Applicant maintains that Goff does not teach, disclose, or suggest a “control unit” as recited in Applicant’s claim 2, notwithstanding the comments in the office action to the contrary. Since the Office Action admits that Egawa also fails to teach, disclose, or suggest a “control unit”, the combination of Goff and Egawa must also fail to teach, disclose or suggest a “control unit”. For at least this reason, rejection of Applicant’s claims 2 and 4-9 under 35 U.S.C. §103(a) should be withdrawn. MPEP §2143.

However, there is at least one other reason that the rejection of claims 2 and 4-9 under 35 U.S.C. §103(a) should be withdrawn. Neither Egawa nor Goff appear to teach, disclose, or suggest “[a] predetermined temperature [that] is set such that dark current of said amplification unit does not exceed a predetermined value”, as recited in amended claim 2. Because not all claim elements are taught or suggested, the rejection of claims 2 and 4-9 under 35 U.S.C. §103(a) as being unpatentable over Egawa in view of Goff should be withdrawn. MPEP §2143.03.

CONCLUSION

Based on the foregoing amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the rejection of claims and allowance of this application.

AUTHORIZATION

While no other fees are believed due for the timely filing and consideration of this paper, the Commissioner is hereby authorized to charge any additional fees, or credit any overpayment for an extension of time to Deposit Account No. 13-4500, Order No. 1232-4758. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,
MORGAN & FINNEGAN, L.L.P.

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By: 

Stephen J. Manetta
Registration No. 40,426

Correspondence Address:

MORGAN & FINNEGAN, L.L.P.
3 World Financial Center
New York, NY 10281-2101
(212) 415-8700 Telephone
(212) 415-8701 Facsimile

AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings includes changes to Figures 2, 4, 6, 7, and 11. These sheets replace the original sheets for Figure 2, 4, 6, 7, and 11.

In the case of Figure 2, the reference sign “IRCLK” has been added. The reference sign “IRCLK” refers to the vertical arrow that connects reference numeral 22 with 11 in Figure 2.

In Figure 4, the reference signs “ST1”, “ST2”, “SH”, “CCDCLR”, “49”, “17”, “18”, and “19” have been deleted.

In Figure 6, step S602 has been amended to read “PREDETERMINED TEMPERATURE OR MORE”.

In Figure 7, step S701 has been amended to read “SET DIFFERENCE OUTPUT”.

In Figure 11, the label “PRIOR ART” has been added.

Attachment: Five Replacement Sheets

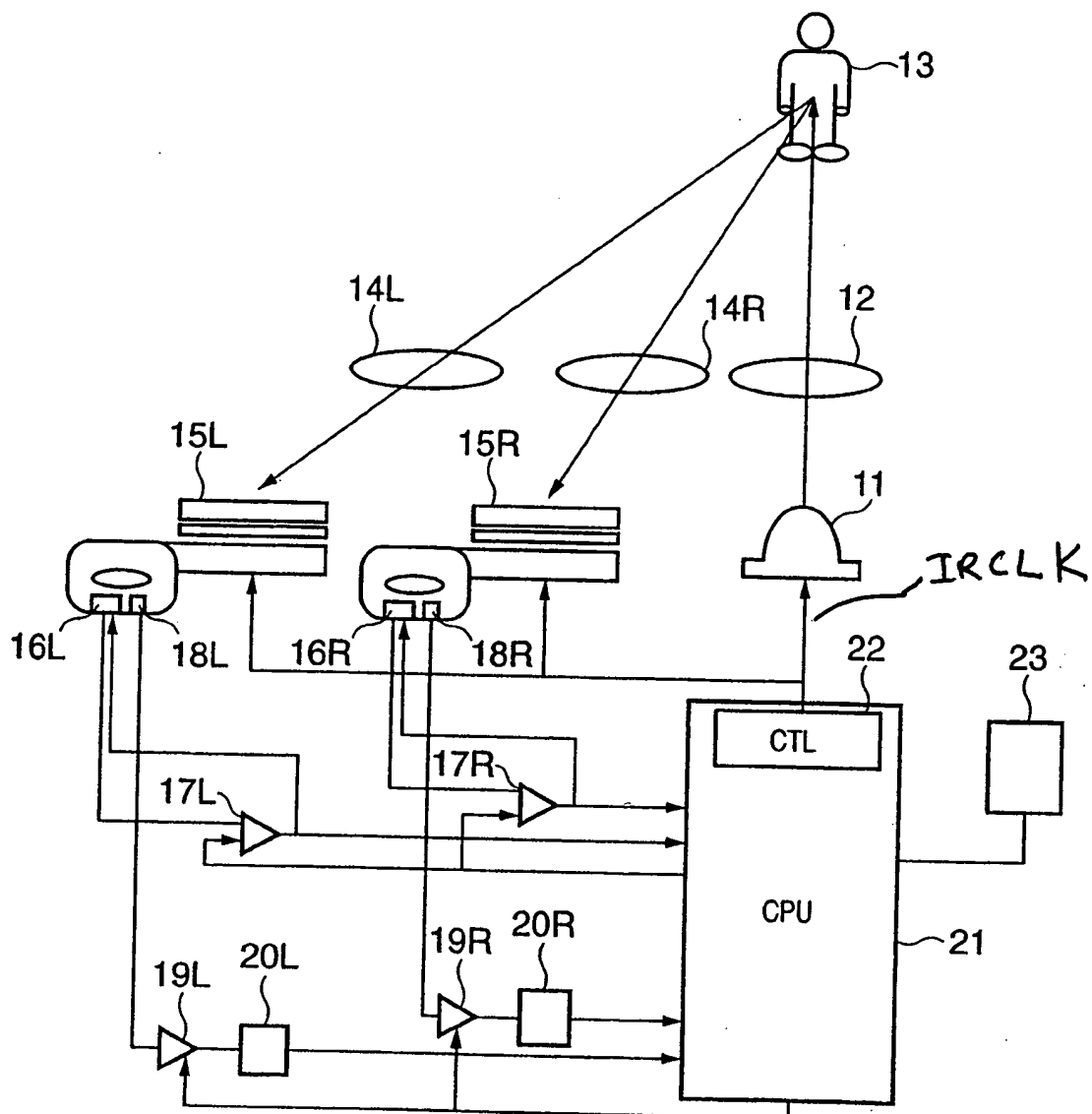
Five Annotated Sheets Showing Changes



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ANNOTATED MARKED-UP DRAWING

FIG. 2



ANNOTATED MARKED-UP DRAWING

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FIG. 4

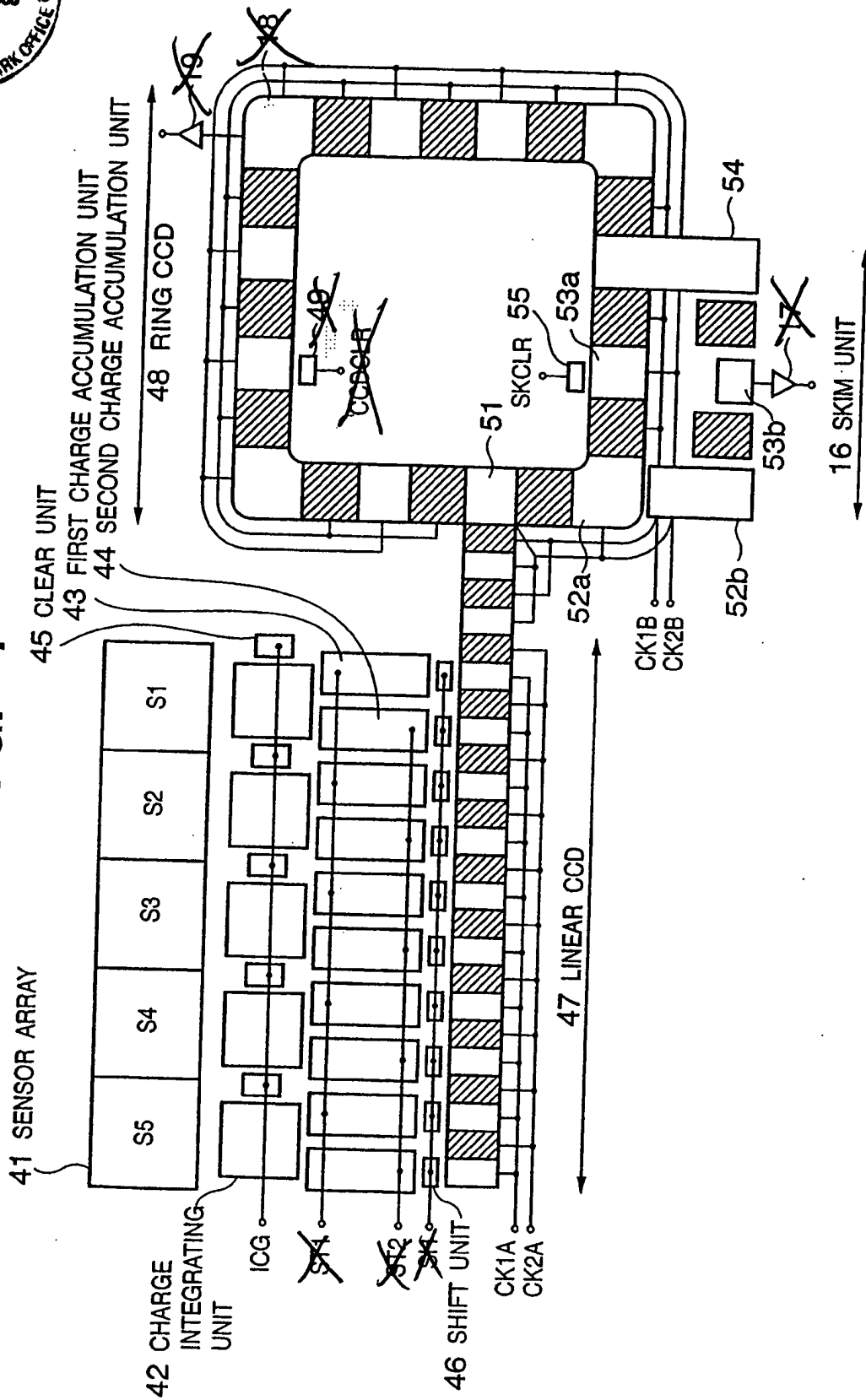
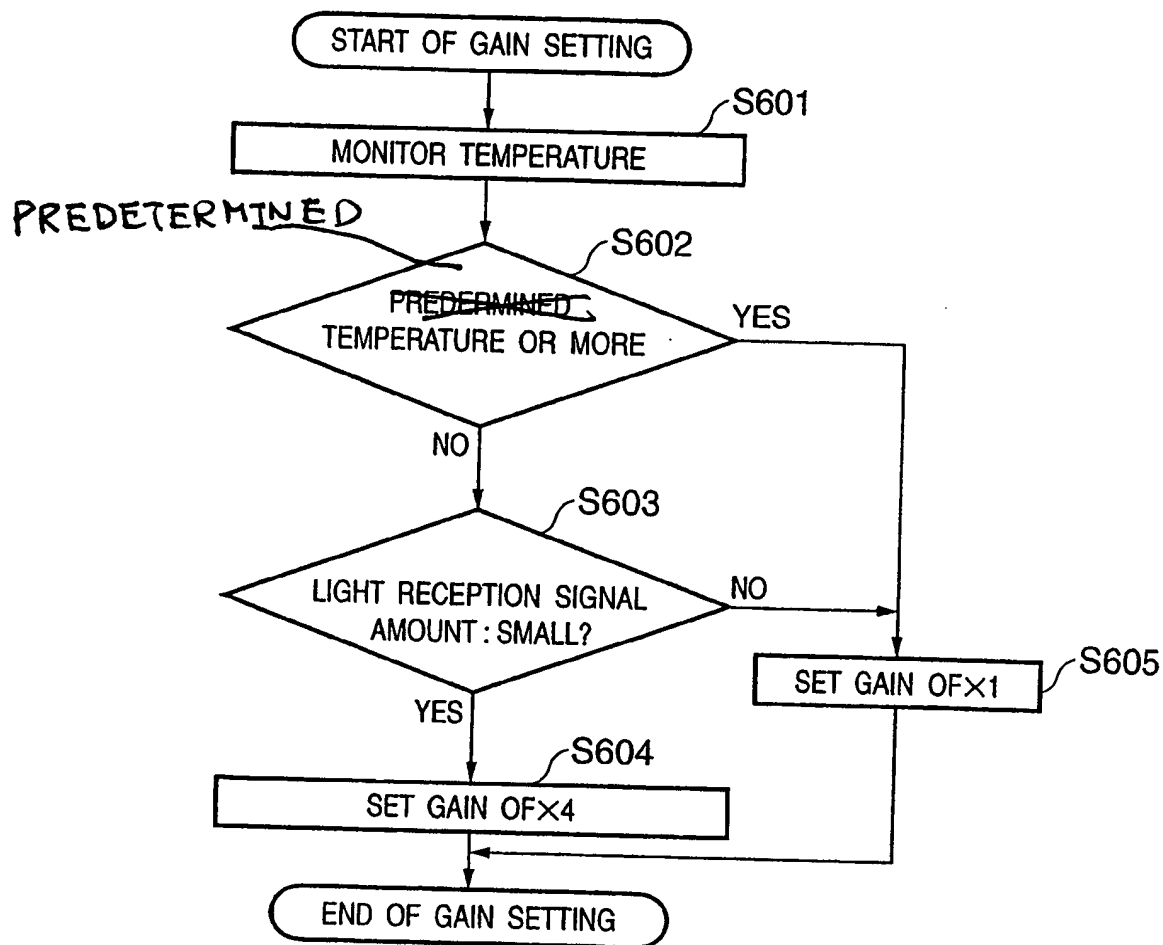


FIG. 6

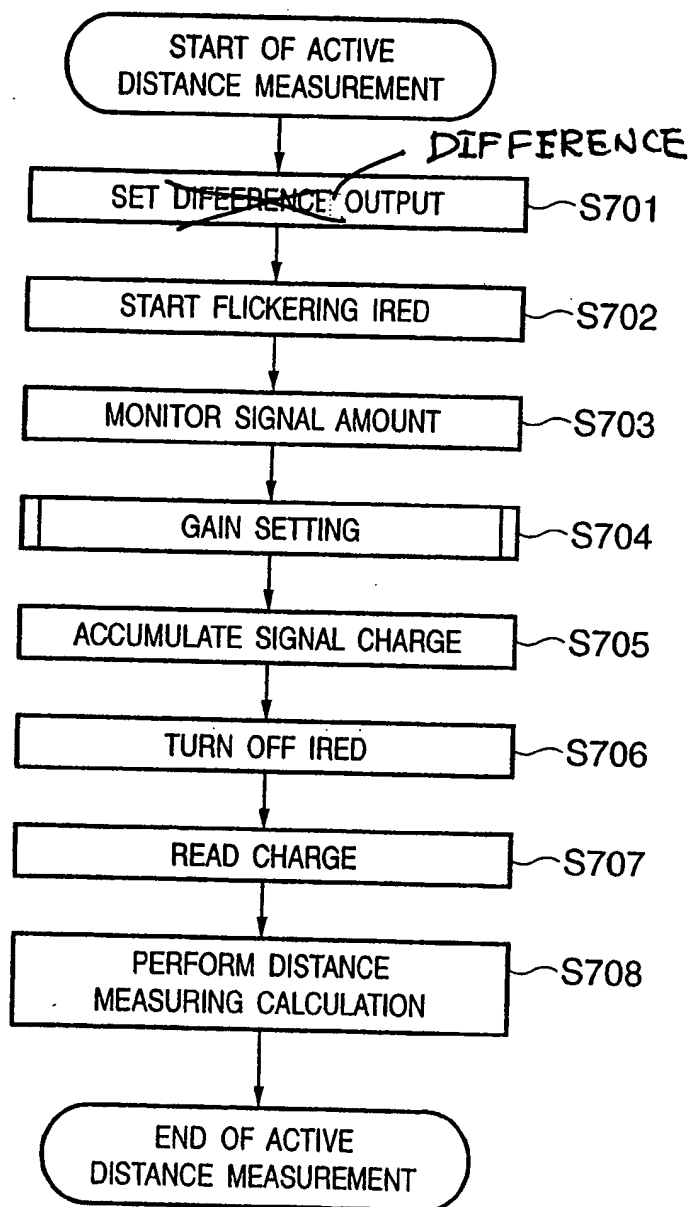




ANNOTATED MARKED-UP DRAWING

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FIG. 7



ANNOTATED MARKED-UP DRAWING

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FIG. 11

